WV Spill

Summary of Region 3 Laboratory Support Efforts

1/31/2014
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Compounds of Interest

Material R3 Lab Obtained related to Crude MCHM/Crude PPh mixture in storage tank

- Obtained standards for MCHM and PPh (attached is list of compounds and CAS#)
- Obtained two standards with components in diPPh
- Obtained crude MCHM from Eastman Chemicals
- Obtained crude PPh from National Guard (originally obtained from Dow Chemicals)
- Obtained material from original tank at site from National Guard

Technical Support

R3 Lab personnel provided technical support on chemical nature of compounds of interest and applicable methods.

Assisted USGS National Water Quality Laboratory with methodology and shipment of MCHM standard.

Worked with ERT on source for standards and method performance.

Terry Smith and Trish Tidwell-Shelton notified and updates provided to Trish.

Participated on conference calls organized by National Guard (Lt. Col. Grant) that included WV State Public Health Lab, WV American Water, MATRIC, and REIC.

- In an effort to strengthen laboratory analysis of MCHM and PPH, chemists and lab managers from nine organizations including EPA, are working collaboratively to share information and analytical data about the mixture. Participants include the National Guard, WV American Water, American Water Research, REI Consulting,

DuPont Inc., Dow Inc., Matric Inc., ATSDR, and EPA. The group is looking to identify analytical techniques that will allow for lower detection limits for the single compounds, MCHM and PPH, in water. The lower detection limits will increase the capacity of laboratories to detect MCHM and PPH in water at orders of magnitude below the health risk levels.

Contacted Marshall University to obtain methodology used to analyze for formaldehyde.

Analytical Support

Detection Limits:

- SVOC analysis yields best results for MCHM and PPh standards and crude mixtures.
    - MCHM and PPh at 0.5 ppb level using 1L sample. (Recoveries were around 80-90% with worst at 70% w for 0.5 ppb, 5 ppb, and 50 ppb.)
- VOC analysis indicates poor purge and trap recovery for MCHM and PPh unless heated during purge cycle. Detection limit around 100ppb
- HPLC/UV – PPh mixture detected and limit around 75 ppb.

On Friday 1/24, R3 Lab received material from alternate storage tank containing Crude MCHM and Crude PPh.

Characterization of the storage tank material completed with the exception of running the sample on the GC/IR (next week). Summary report is being compiled.

- GC/MS SVOC preliminary list of constituents submitted
- GC/MS VOC preliminary list of constituents submitted
    - Both show presence of crude MCHM and crude PPh compounds
- Metals not detected; small amount of calcium; no mercury
- No significant amount of anions; small amount of chloride
- pH = 5
- approx. 3.7% water

On Thursday 1/30, R3 Lab received split surface water samples and are currently being analyzed for

SVOC and VOCs.

Additional samples expected Tuesday 2/4/14.